Fig. 1

Table 1—A

	Example									Comparative Example								
Example No.	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Catalyst No.	3056	3066	3070	3057	3058	3009	3032	3076	3087	3043	3010	3093	3041	3021	3023	3025	HOP 606	3069
Shape	C*	C*	C*	C*	C*	C*	C*	C*	4L*	C*	C*	C*	C*	C*	C*	C*	C*	C*
Diameter (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.2	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5
Molybdenum (wt%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	6.0	3.0	3.0
Nickel (wt%)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.0	1.0
Phosphorus (wt%)	0	0.6	0	0	0	0	1.0	0.6	0.6	0	0	0.6	0	0	0	0	0	0.6
Boron (wt%)	0	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Starting γ-alumina/ carrier (wt%)	100	100	100	100	100	80	100	100	100	100	60	100	100	100	100	100	—	100
Specific surface area [NM*] (m^2/g)	202	187	191	276	213	258	210	189	186	272	256	183	289	293	275	249	252	176
Pore volume [NM*] (cm^3/g)	0.63	0.69	0.59	0.71	0.68	0.62	0.62	0.73	0.71	0.54	0.65	0.69	0.67	0.71	0.65	0.66	0.73	0.60
Median pore diameter [NM*](nm)	11.1	13.0	11.0	8.2	10.3	8.2	9.4	12.7	12.4	6.8	8.6	12.2	7.5	7.9	8.0	8.9	9	12.6

C*: Cylindrical 4L*: 4 Lobes NM*: Nitrogen adsorption method

Fig. 2

Table 1—B

	Example									Comparative Example								
Example No.	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Catalyst No.	3056	3066	3070	3057	3058	3009	3032	3076	3087	3043	3010	3093	3041	3021	3023	3025	HOP 606	3069
Pore volume [MM*] (cm^3/g)	0.95	1.00	0.89	0.94	0.97	0.94	0.88	1.03	0.97	0.83	0.86	0.90	1.00	0.84	0.83	0.79	0.97	0.91
Pore volume of 50nm or larger [MM*] (cm^3/g)	0.38	0.35	0.34	0.34	0.34	0.34	0.33	0.34	0.34	0.33	0.28	0.29	0.42	0.21	0.17	0.20	0.31	0.36
Pore volume of 1,000nm or larger [MM*] (cm^3/g)	0.01	0.02	0.01	0.02	0.02	0.16	0.15	0.02	0.02	0.08	0.13	0.01	0.24	0.01	0.01	0.00	0.06	0.11
Bulk density (cm^3/g)	0.46	0.47	0.50	0.49	0.46	0.49	0.52	0.46	0.43	0.53	0.50	0.48	0.45	0.51	0.56	0.54	0.46	0.51
Molding method	S	P	S	S	S	S	S	P	P	S	S	P	S	P	S	P	—	P
Wear rate(%)	—	0.36	—	—	—	—	—	—	—	—	—	0.14	—	—	—	—	—	3.7
Wear evaluation	—	○	—	—	—	—	—	—	—	—	—	○	—	—	—	—	—	×
Initial demetallizing activity	0.98	1.22	1.30	1.01	1.06	0.97	1.19	1.63	1.09	0.82	0.91	1.04	0.91	0.88	0.76	1.06	0.86	—
Evaluation (initial activity)	○	○	○	○	○	○	○	○	○	×	×	○	×	×	×	○	×	—
Effective amount of metal deposition (g/100g-fresh catalyst)	—	92	—	—	—	100	87	96	127	—	—	68	—	—	—	57	64	—
Evaluation (life)	—	○	—	—	—	○	○	○	○	—	—	×	—	—	—	×	×	—
Overall evaluation	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×	×	×	—

MM*: Mercury intrusion porosimetry method

Fig. 3

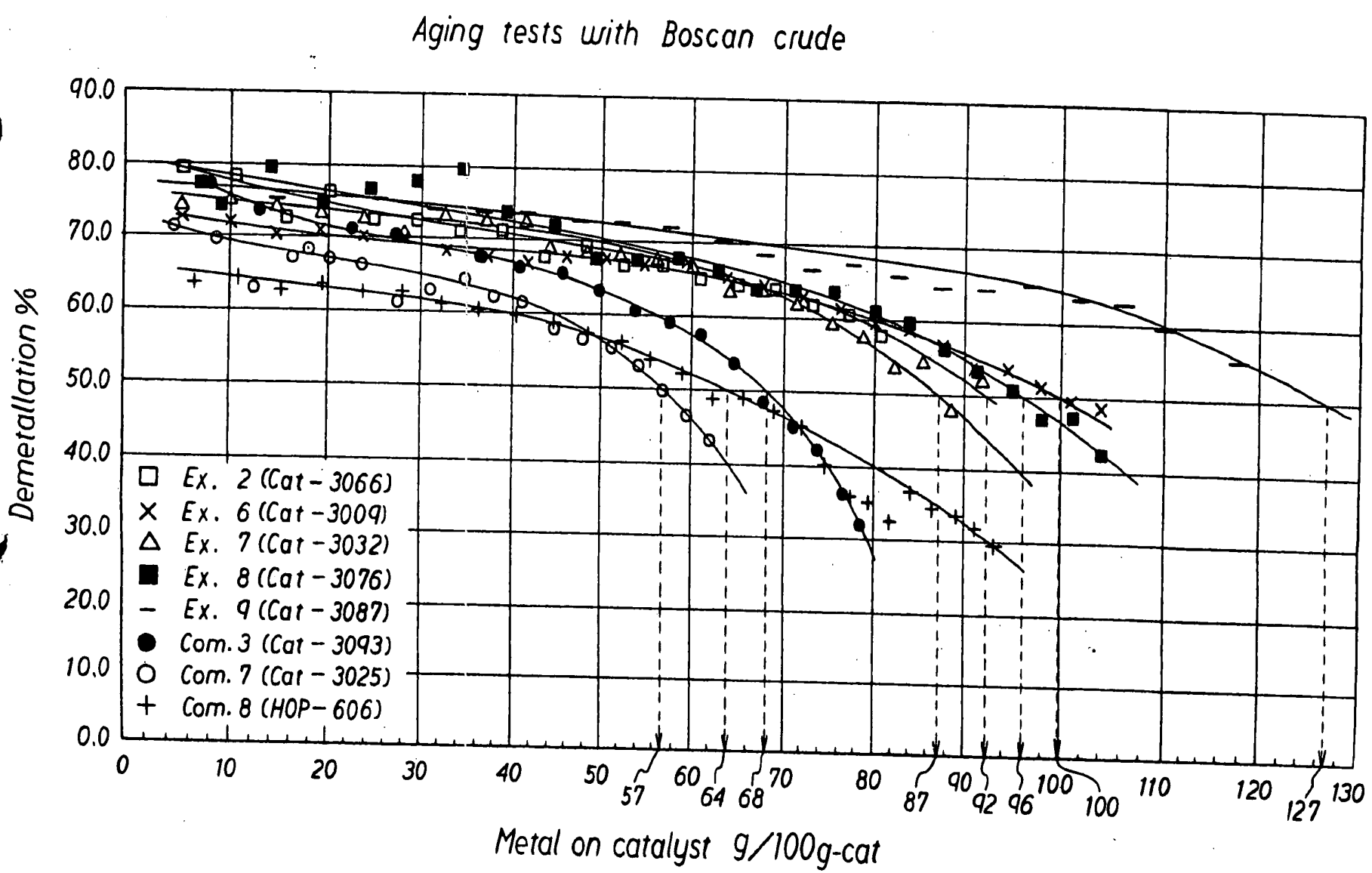

Fig. 4

Aging tests with Ratawi AR & VR mixture